

ANSWERS: pH calculations

Solution	$[\text{H}_3\text{O}^+]$	$[\text{OH}^-]$	pH
$9.56 \times 10^{-5} \text{ mol L}^{-1}$ of OH^-	1.05×10^{-10}	9.56×10^{-5}	9.98
0.133 mol L^{-1} solution of HCl	0.133	7.52×10^{-14}	0.876
a solution of NaOH with a pH of 12.8.	1.58×10^{-13}	0.0631	12.8
$2.47 \times 10^{-2} \text{ mol L}^{-1}$ HCl solution	2.47×10^{-2}	4.05×10^{-13}	1.61
0.0534 mol L^{-1} NaOH solution	1.87×10^{-13}	0.0534	12.7
0.0498 mol L^{-1} hydrochloric acid	0.0498	2.01×10^{-13}	1.3
0.251 mol L^{-1} sodium hydroxide	3.98×10^{-14}	0.251	13.4
	2.40×10^{-5}	4.17×10^{-10}	a sample of rainwater, near a polluted city, is 4.62.
0.108 mol L^{-1} hydrochloric acid	0.108 mol L^{-1}	$9.26 \times 10^{-14} \text{ mol L}^{-1}$	1.93
	0.0263 mol L^{-1}	$3.80 \times 10^{-13} \text{ mol L}^{-1}$	hydrochloric acid with a pH of 1.58.
0.362 mol L^{-1} sodium hydroxide.	$2.76 \times 10^{-14} \text{ mol L}^{-1}$	0.362 mol L^{-1}	13.6
0.0376 mol L^{-1} HCl solution	0.0376	2.66×10^{-13}	1.42
$2.48 \times 10^{-4} \text{ mol L}^{-1}$ NaOH solution	4.03×10^{-11}	2.48×10^{-4}	10.4
0.00112 mol L^{-1} HCl solution.	0.00112	8.93×10^{-12}	2.95
$3.68 \times 10^{-2} \text{ mol L}^{-1}$ NaOH solution.	2.72×10^{-13}	3.68×10^{-2}	12.6
0.125 mol L^{-1} HCl.	0.125	7.99×10^{-14}	0.903
	6.33×10^{-11}	$1.58 \times 10^{-4} \text{ mol L}^{-1}$	NaOH solution at pH 10.2.
0.124 mol L^{-1} NaOH.	7.9×10^{-14}	0.127	13.1
0.0720 mol L^{-1} HCl	0.0720	1.39×10^{-13}	1.143
0.01 mol L^{-1} NaOCl	3.98×10^{-12}	0.00251	11.4
0.1 mol L^{-1} HOCl	4.46×10^{-4}	2.24×10^{-11}	3.35
	0.0350	2.86×10^{-13}	1.46
	1.58×10^{-11}	6.31×10^{-4}	10.8
	1.77×10^{-9}	5.66×10^{-6}	8.75